DOCUMENT RESUME

ED 394 633 PS 023 926

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TITLE The Pacific Family and Food Safety: A Food Guide into the 21st Century.
PUB DATE Aug 95
NOTE 12p.; Paper presented at the Annual Pacific Education Conference (12th, Koror, Palau, August 1-3, 1995).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adults; Cleaning; Daily Living Skills; *Family Health; *Foods Instruction; *Food Standards; Health Education; Hygiene; *Pacific Islanders; Questionnaires; Refrigeration; Sanitation
IDENTIFIERS *Food Education and Service Training; Food Preparation; Food Storage; *Pacific Islands; Smith Lever Act

ABSTRACT

The Food Safety First Program in Guam and the Marianas, sponsored in part by the United States Department of Agriculture, assesses the food safety behavior of the local population, and uses the results to develop educational programs. The thriving of bacteria in the local climate places extra importance on educating the population on the necessity of storing, preparing, and serving food under sanitary conditions in compliance with federal and local standards. A questionnaire administered to 200 participants collected demographic information and solicited responses in the five researcher-defined areas: (1) Food Preparation; (2) Food Storage; (3) Holding Prepared Foods; (4) Sanitary Manners and Food; and (5) Food during Typhoon and Power Outages. The participants, of whom 76% were female and 56% were Chamorros from Guam and Saipan, indicated that they were, in general, aware of and concerned about basic food safety, refrigeration, and temperature requirements. However, 49% reported not washing hands before or after eating. Other problems noted were the long distances between homes and shopping areas, and the use of uncooked marinades. (The questionnaire is appended.) (JS)

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THE PACIFIC FAMILY AND FOOD SAFETY

A Food Guide into the 21st Century

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Introduction

For many years, Food Safety and Quality Targeted Programs have reported on the existing and progress of food safety in the United States. Local programs have patterned its own concerns in this direction, although the cry for more efforts toward effective food safety is evident enough to address the continuing food safety assessments and findings. Food Safety First does just this assessment and reports what existing food safety behavior contributes toward trends that transfer effectively to coping with problems affecting the safety and quality of food supply in the Pacific region. Food Safety First also reports comparisons of certain variables of behavior. This assessment provides information in understanding the risks and practices in relation to food and health. The data provided describes the actions of food handlers and their responsible decisions related to food safety, its issues, and concerns.

Currently, the Food Safety First project is the only one existing in this Pacific region (Guam and the Marianas). It is the intention that this Food Safety First Program will supercede future projects with the hope that food safety behavior will continue to be evaluated, taught, and practiced, so that the island people and community will lead a continuous healthy lifestyle.

The Assessment Framework

Any assessment of food safety behavior can cover only a small part of the domain of food safety education provided over years of food consumption, and generations of food handlers. Therefore, the assessment panel can only prioritize the areas which are based on Micronesia and the Marianas in their trends and views concerning food safety. As presented in Appendix A, the assessment weights were assigned to food preparation facilities, storage, and handling. The framework recognizes the various forms of food practices by Pacific Islanders, the conditions under which food is prepared, stored, and handled throughout its exposure. Current methods of food preparation are not sufficient to guarrantee effective safety practices and applications.

Context for Planning Food Safety First

The existing codes (both Federal and Local) concerning food and its environment clearly tell how food must be handled in safe, clean, and healthful surroundings. Time and again, food safety is dismissed by food handlers, thereby demanding constant attention. This project is the result of the growing concerns for food safety with the help of a grant from the Smith Lever Act[1] for the benefit of youth and adult extension education work.

1. Smith Lever Act, Section 3D, Federal Allotment #93-EFSQI-4073. Issued in furtherance of Cooperative Extension work Acts of May 8 and June 30, 1914 in Cooperation with the United States Department of Agriculture(USDA). C.T. Lee Dean/Director, College of Agriculture and Life Sciences, Guam Cooperative Extension, University of Guam, UOG Station, Mangilao, Guam 96923.

The researchers of Food Safety First understand the irony behind food safety. Even the culprits may, at the same time, be the victims and could use some refresher in food safety principles and content. Although Food Safety First acknowledges current practices relating to categories of food, food handling practices vary throughout the Pacific areas. The bottom line of Food Safety First is to broaden the scope of services rendered to food by affecting its sanitation and safety.[2] Studying and dealing with local problems can make possible a more rapid and successful approach[3] to Food Safety First.

With the ever expanding fast food demand in the Pacific regions, where bacteria thrive best in high temperatures, care and awareness to this thought is a must. Therefore, for all practical purposes in food handling, one expects food bacterial growth to take place no matter what.[4] The typical consumer, then, must pay extreme attention to food consumption in terms of its safety in normal usages as opposed to food toxicity or food hazard.[5] The Pacific region food consumers will now be able to know that food safety can and make their lives happier and healthier through daily food safety practices.

2. Food Service Sanitation, 3rd Edition, by the Educational Foundation of the National Restaurant Association USA, John Welery and Sons. 1985 p.120.

3. Food Sanitation Service Manual, Ordinance and Code, 1971 by US DHEW, Washington, DC.,Public Health Service Publication NO. 934, 1978 p.722

4. Sanitary Techniques in Food Service by Karen Longree and Blaker, McMillan Publishing Co. New York. 1982 p.1122

5. Food Safety by Julie Miller Jones, Eagan Press, Minnesota 1992 p.6

6. Food Safety First Assessment by the Statistics Class of Father Duenas Memorial School, Mangilao, Guam. 1995.

Background Variables

Background information for the Food Safety First project is useful in determining the distribution of educational resources across the population, the geographic characteristics and the age factor of the variables.

For the Food Safety First assessment, a questionnaire (Appendix A) was compiled to collect basic demographic information and focus into five contextual areas which are summarized below:

1. **Food Preparation:** Food preparation areas, utensils, food processors, and cutting boards must be clean. Wipe off lids before opening jars and cans. Food is thawed in the refrigerator. Different utensils are used for raw food and cooked food, to avoid cross-contamination. Partial cooking is not advisable. Food is tasted with a clean spoon and washed after use. Fresh produce is scrubbed and rinsed thoroughly to remove dirt and bacteria. Marinated food is kept in the refrigerator and leftover marinating sauce is discarded after use.

2. **Food Storage:** Refrigerate or freeze all perishable foods right away. Store eggs in the refrigerator. Refrigerate custard and cream-based foods as well as high protein foods. Keep refrigerator temperature at 40° Farenheit or lower, and the freezer at 0° Farenheit or lower. Preparation of perishable food should be allowed a minimal amount of time, keeping in mind that the allotted time for this type of food must be no more than two hours in the temperature danger zone..

3. **Holding Prepared Foods:** Keep hot foods hot at 145° Farenheit or higher. Keep cold foods at 40° Farenheit or lower. Perishable foods should not be left at room temperature for more than two hours. Covering containers of food to guard against contaminants and retain heat. Use ice beds under and around dishes holding cold foods. Refrigerate leftovers as soon as possible. Thoroghly heat leftovers to boiling point before service. Maintain hot foods at 140° Farenheit or higher in hot holding equipment.

4.**Sanitary Manners and Food:** Personal hygiene, keeping healthy, and wearing gloves at food preparation is a neccessity. Using clean and proper serving utensils is an excellent practice. Cleanliness is a top priority in food handling.

5. **Food during Typhoon and Power Outages:** Food supplies that do not require refrigeration are necessary before typhoons. Cleaning the refrigerator before a typhoon will minimize odors as a result of the power outages. Keep the refrigerator and the freezer closed as much as possible. Keep a large supply of water on hand for drinking, cooking, washing, and for sanitary purposes. Water may be purifed by adding eight drops of chlorine to one gallon of water and lettting it stand for 30 minutes. Dry ice may replace melting ice. Thawed food should never be refrozen.

The contextual areas above have been initiated to be included in the educational growth of the Food Safety First philosophy. Focus on concerns and behavior of 200 participants who answered the survey in Appendix A is summarized in the next section.

Findings and Results

The participants of Food Safety First indicate an age of 40.3 years as the average survey participant. Of the 200 people surveyed, 56% were Chamorros from Guam and Saipan. Of the 76% that were female, 63% were married with children and indicated that the presence of children attributes greater concern for food safety.

Both indoor and outdoor food preparation facilities show that users of these facilities are aware of basic food safety and do provide roof and/or screen for these facilities. All 200 participants indicate the usage of refrigeration. Of this number, 8% reported not covering food for simple reasons of not having a cover or not having time to cover refrigerated food. 4% reported keeping food leftovers from 1 - 3 days before eating it again, and only 15% reported cleaning their refrigerators weekly.

Approximately half of the participants surveyed reported attending parties of 50 or more people with 6 - 10 varieties of food served. When shopping for a party, 78% reported buying foods last in their shopping route and going straight home to store foods in the refrigerator/freezer. These same people also indicated that they trusted the temperature of the store refrigerator/freezer better than that of their home's refrigerator/freezer.

For the Pacific Islanders, spending money is still prioritized on food. Leftover monies are spent on domestic items. Many times, supermarkets and domestic stores are situated with some distance from home, so foods are left in the hot vehicle during the remainder of the shopping spree.

One of the findings in regards to food preparation show a behavior during a barbeque where the same container used to marinate meat is also used to store cooked meat. Many times, some of the uncooked marinating sauce is served with the cooked meat. In Pacific temperatures, the above act must not be considered solely safe. Differing methods of preparing different foods for a party depend on both number of food varieties to be served and the number of people invited.

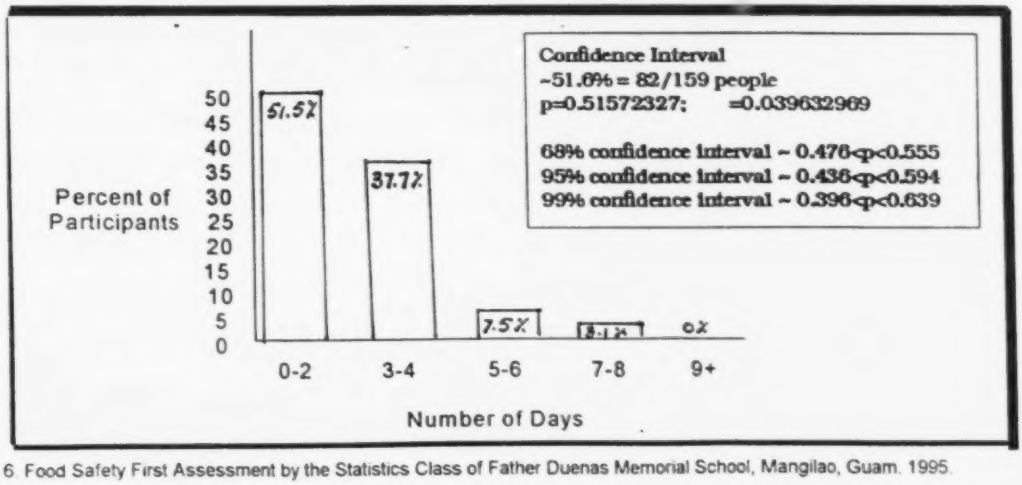
81% of the 200 surveyed participants reported having a fair idea of hot and cold temperature requirements of foods by responding to the question concerning temperatures at which to keep foods hot and cold. Participants reported that this thought obliges party service attendants to open up more food tables for service. This lessens the time the food is kept at room temperature. After everyone has eaten, another school of thought must be considered. This concerns our awareness to keep food safe after all our guests have eaten. Do we keep the food temperature hot while food is standing? 30% reported that they and their guests continue their party through the day and onto the following day. A distribution of showing the days that food is left in the refrigerator before it is eaten is illustrated in Table I below.

With regard to sanitation concerns, 80% reported not thinking of washing hands after smoking. 49% reported not washing hands before or after eating and people handling children continuue to be unaware of the dangers of unwashed hands.

In summary, 52% of the survey participants reported being concerned about their facilities, refrigeration, stove cooking, preparing, storing, serving and handling left-over foods during parties and power outages.[6] A list of food safety concerns as shown in Table II indicate what Pacific islanders consider to be worth looking into (see Table II, p.6).

Table I: DISTRIBUTION OF DAYS OF FOOD REFRIGERATION BEFORE EATING

Total Participants: 159



6. Food Safety First Assessment by the Statistics Class of Father Duenas Memorial School, Mangilao, Guam. 1995.

Table II: FOOD SAFETY CONCERNS

1. Know how Pacific temperatures affect food safety
2. Teach children food safety at earliest age possible
3. Observe and learn food safety measures
4. Enforced outdated food labeling at all food outlets.
5. Frequent inspections of roadside stands
6. Give roadside stands food ratings according to PHSS (Public Health and Social Services) standards
7. Look for food contamination and spoilage
8. Prevent foodood poisoning
9. Keep foods with mayonnaise fresh
10. Sanitize food preparation and cooking areas
11. Educate food handlers
12. Prevent inedible items from getting into food
13. Determine if food is cooked enough
14. Prepare food safely for a big party
15. Guard against unsanitary methods of cooking food
16. Train food handlers well for extended clients
17. Serve party food after a party
18. Time the service of food at a party
19. Serve and eat safe beach party food
20. Guard against flies at a party
21. Eat healthy foods
22. Fight bacteria harmful to food
23. Keep food fresh and healthy
24. Serve leftovers safely from the refrigerator
25. Cook food the right way

Concerns of Pacific Islanders About Food Safety

APPENDIX A
Importance of FOOD SAFETY FIRST Assessment

Name_____ Ethnic Group_____
(Chamorro, Filipino, Carolinian, Saipanese)

Age_____ Male_____ Female_____ Other: Specify_____

Status: Married____ Married with children_____ Education Level_____
Single ____ Single with children _____

DIRECTIONS: Please circle or check the appropriate answer (if possible, explain or describe your answer). Thank You.

I. Existing food preparation facility (kitchen):
1. Indoor: with screen door? yes___ no___; without screen door? yes___ no___
other: (please explain)_____
2. Outdoor: with roof only? yes__ no___
with screen enclosure? yes__ no___;
without screen enclosure? yes__ no___

II. Refrigeration
1. Do you have a refrigerator? yes___ no___
2. Do you store food covered or uncovered?_____
3. How long do you keep cooked food in refrigerator before it is eaten again?
(number of days)_____
4. How often do you clean your refrigerator? _____

III. On types of stoves/ovens
1. What type of stove do you have? Wood fuel stove: yes___ no___
Electrical stove: yes___ no___
Indoor/outdoor gas stove: yes___ no___
Kerosene stove: yes___ no___
Microwave/oven yes___ no___
2. How frequent do you use your stove?
(once, twice, etc. a day)_____

IV. On parties
1. To the best of your knowledge, approximate the number of parties, picnics, and fiestas, you and your family attend in a month
(as a form of socialization) _____
2. How big are these functions that you attend?
(in terms number of people attending, check 1 or more)
1-25____ 26-50____ 51-100____ 100+____

3. How many varieties of dishes were served?
   1-5___ 6-10___ 10-20___ 20+___
4. How often do you give a party? _____times a month _____times a year

IV. Buying and storing food for the party

1. How many days in advance do you buy food for the party? (no. of days)
   fresh foods and vegetables? _____days
   frozen foods and vegetables? _____days
   chilled foods? _____days
2. Do you buy outdated foods? yes___ no___
3. Do you buy cold things first or last? _____
4. Do you hurry home after shopping? yes___ no___
5. Where do you store food supplies?
   fresh food and vegetables? _____
   chilled foods? _____
   frozen foods? _____
   canned and dry foods? _____

V. Party preparation

1. Do you prepare your food at the day of the party? yes___ no___
2. How long did it take to prepare the food?
   1-2 days ____ 2-3 days ____ 3-4 days ____ 5+ days ___
3. When do you begin to prepare the following foods?
   rice _____ chicken_____
   potato salad_____ pancit_____
   spareribs_____ beef_____
   kelaguen_____ fish_____
   stir fry_____ shrimp_____
   vegetable salad_____
   pies/custard pies/latiya_____
   other dishes (specify)_____

4. How long do you leave food on the counter or table?_____
5. How long do you keep prepared foods out before cooking it?_____
6. Do you use a cutting board to chop raw food, meat, or vegetable on?
   yes___ no___
7. How often do you wash cutting boards and knives?_____
8. Do you use the same container to marinate meats and then store cooked meats in this marinating sauce?_____
9. Do you taste your cooking with the same utensil that you stir the food with?
   yes___ no___

VI. Storing prepared foods

1. Where do you store prepared foods? (check below)
   in the refrigerator? _____ over a heated stove?_____ on kitchen table? _____
   inside cupboard?_____ in an outside kitchen?_____ on shelves? _____
2. Do you have enough refrigeration space to store food
   made in a day or more in advance? yes___ no___
   during food service? yes___ no___
3. Do you keep hot foods hot while the party is going on? yes___ no___
4. At what temperature do you keep hot foods hot? _____

VII. Party table/service

1. How many tables of food are displayed? 1-2___ 3-4___ 5 or more___
2. How long do you display food on the table? _____
   with use of food warmer? _____
   on service tray or platter on table? _____
   cold food on ice? _____
   cold food on platter on table? _____
3. Do you serve food in large quantities? yes___ no___
   medium quantities? yes___ no___
   small quantities? yes___ no___
4. What do you do with the displayed foods on the table while waiting for other
   guests to arrive?_____

VIII. Party leftovers

1. What do you do with leftovers? throw away____ give away____
   keep on the kitchen table for indefinite time____
   eaten later on the same day____
   eaten later a day or more after the party____

IX. Power outage (including natural disasters, typhoons,etc.)

1. What do you do with thawed out food? refreeze when power returns? ____
   cook right?____ throw it out?____ other? (specify)____

X. Other concerns

1. Do you wash your hands before/after
   handling foods? yes___ no___ smoking? yes___ no___
   using the bathroom? yes___ no___ eating? yes___ no___
   handling children? yes___ no___ sneezing and coughing? yes__ no___
   touching used dishes and utensils? yes___ no___
2. What do you use to wash hands with?_____
3. How many members of your family prepare food? _____
4. After reading this questionnaire, will you be willing to change your behavior
   concerning food safety? yes___ no___
5. Are you concern about food safety? yes___ no___

IX. Food safety education

1. If you are concerned about food safety, what are your concerns or issues?

_____

2. Will you be interested in being in a Food Safety First

brochure? yes___ no___

poster? yes___ no___

video? yes___ no___

Note: If you are interested in helping develop an educational material on Food Safety First, please complete the following necessary information for our contact with you.

Name_____

Mailing Address_____

_____

Home Telephone No._____

Work Telephone No>_____